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...pool to understand community exposures?

Environmental Monitoring

Since March 2000, Ohio EPA has collected airborne Total Suspended Particulate (TSP) monitoring data from three locations in the E. Liverpool community:

- **Water Plant** - 250 feet due west from the State Line facility property
- **Port Authority** - 0.33 miles west-southwest of the Little England facility
- **Maryland Avenue** - 0.30 miles north-northwest of the Little England facility
(This location is located on the roof of the East Liverpool City Schools Administration Building, adjacent to the East Elementary School)

For all three sites a *composite* of individual samples collected every 6 days during each month was analyzed to represent a monthly average. The filters were analyzed for: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel, and zinc. In 2005, Ohio EPA also began analyzing every filter at the Water Plant in *discrete* (individual) as well as monthly averaged composite samples to better understand the high monthly averages detected at that location.

Risk Assessment

In February of 2008, Ohio EPA conducted an analysis of air quality from data collected in the community from March 2000 through December 2007. An 8-year average air concentration for each of three ambient sampling sites was used to calculate cancer and non-cancer health risks for residents chronically exposed to chromium and manganese in ambient air. Of the metals that were sampled over the 8 year period, only chromium and manganese exceeded chronic health based guidance values. It should be noted that this analysis did not distinguish the specific chemical form of chromium. Chromium is generally found in either the valence state of chromium III (CrIII; more common in the environment) or chromium VI (CrVI; a rarer and more toxic form). As a conservative estimate in their risk assessment, OHIO EPA assumed all of the chromium was present in the more toxic form.

Additional analysis of the Ohio EPA samples was performed to understand whether the chromium posed a cancer risk. ATSDR requested that the U.S. EPA National Enforcement Investigations Center (NEIC) evaluate the valence state of chromium detected on the samples in East Liverpool to better assess cancer risk. Preliminary data suggest that none of the chromium detected on filters evaluated is CrVI, but rather it is all CrIII. The excess cancer risk calculated in the Ohio EPA risk assessment for chromium VI exposure is not considered to be a concern. ATSDR has determined that the manganese poses a higher than normal **non-cancer risk** associated with exposure to manganese to the residents of East Liverpool.

Enforcement